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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/034,876	12/27/2001	Chung-Liang Hsiao	JCLA8242	1447
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J.C. Patents, Inc.			EXAMINER	
Suite 250 4 Venture		NGUYEN, TRUNG		RUNG Q
Irvine, CA 926	518		ART UNIT	PAPER NUMBER
			2829 DATE MAILED: 05/12/2003	lemai (

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary 10034,875			Application No.	Applicant(s)	$-\mu_{-}$
Examiner Larminer					
Trung Q liguyen ASHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION. If the period for reply specified above is less than theiry (30) days, a reply with the sautory reminement childry days with be coastered freely. If the period for reply specified above is less than theiry (30) days, a reply with the sautory reminement childry days with be coastered freely. If the period for reply specified above is less than theiry (30) days, a reply with the sautory reminement childry days with be coastered freely. If the period for reply is appelled above is less than their (30) days, a reply with the sautory reminement childry days with be coastered freely. If the period tree reply is appelled above is less than their (30) days, a reply with the sautory reminement childry days with be coastered freely. If the period freely is appelled above is less than their (30) days, a reply with the sautory reminement childry days with be coastered freely. If the period for reply is appelled above is less than their (30) days, a reply with the sautory reminement childry days with be coastered freely. If the period for reply is application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Queryle, 1935 C.D. 11, 453 O.G. 213. Disposition of Claims 4) Of the above claim(s) is are withdrawn from consideration. 5) Claim(s) is are pending in the application. 4) Of the above claim(s)	Office Action Summary				
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Period for Reply "ASHORTHENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION. "are SIX (8) MONTHS from the mailing date of this communication." If the period for reply is appointed by the scanning days of this communication. If the period for reply specified above, the maintens statutory period will apply and will agone SIX (8) MONTHS from the mailing date of this communication. If the period for reply is appointed by the Six distribution is less than this? (3) days, a reply within the statutory minimum or thiny (30) days will be considered timely. If No period for reply is appointed by the Office little than there months after the mailing date of this communication, even if limely filed, may reduce any search part for mail part for mail part from the promise and part from department. See 37 CFR 1.704(b). **Status** 1) **Example application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213. **Disposition of Claims** 4) **EX Claim(s) **1.31 is/are pending in the application. 4) **EX Claim(s) **1.31 is/are rejected.** 7) **Claim(s) **1.31 is/are rejected.** 10) **The drawing(s) filed on ***—— is/are: a) **accepted or b) **objected to by the Examiner. Application Papers 9) **The proposed drawing correction filed on **—— is/application to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). 11) **The proposed drawing correction filed on **—— is/approved by the Examiner. 11 **portoved, corrected drawings are required in reply to this Office action.** 12 **Certified copies of the priority documents have been received.** 12 **Certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)). **See the attached defailed		- The MAII ING DATE of this communication		1	ross
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2a) This action is FINAL. 2b) This action is non-final. 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213. Disposition of Claims 4) Claim(s) 1-13 is/are pending in the application. 4a) Of the above claim(s) is/are withdrawn from consideration. 5) Claim(s) is/are allowed. 6) Claim(s) is/are objected to. 8) Claim(s) is/are objected to. 9) Claim(s) is/are objected to by the Examiner. Application Papers 9) The proposed drawing(s) filed on is/are: a) accepted or b) objected to by the Examiner. Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). 11) The proposed drawing correction filed on is: a) approved b) disapproved by the Examiner. If approved, corrected drawings are required in reply to this Office action. 12) The oath or declaration is objected to by the Examiner. Priority under 35-U.S.C. §§ 119 and 120 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f). a) All b) Some * c) None of: 1. Certified copies of the priority documents have been received. 2 Certified copies of the priority documents have been received in Application No. application from the International Bureau (PCT Rule 17.2(a)). * See the attached detailed Office action for a list of the certified copies not received. 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121. Attachments) * The translation of the foreign language provisional application has been received. 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.	THE M - Exten after S - If the - If NO - Failur - Any re earne	IAILING DATE OF THIS COMMUNICATION SIGNATURE THE PROVISION OF THE PROVISION OF 37 CF SIX (6) MONTHS from the mailing date of this communication period for reply specified above is less than thirty (30) days, a period for reply is specified above, the maximum statutory period for reply within the set or extended period for reply will, by simply received by the Office later than three months after the months.	ON. R 1.136(a). In no event, however, may and the statutory minimum of the eriod will apply and will expire SIX (6) MO tatute, cause the application to become A	reply be timely filed irty (30) days will be considered timely. NTHS from the mailing date of this corr BANDONED (35 U.S.C. § 133).	nmunication.
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DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in-

the treaty defined in section 351(a).

al. (U.S. 6,426,281).

- (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under
- 2. Claims 1-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Lin et

Regarding claims 1 and 6, lin et al. disclose in Figures 6-17 a method of forming a bump comprising a wafer Figs. 6 having plurality of chips via semiconductor 30 (column 7, lines 45-50) provided with a plurality of bonding pads 32 (column 8, lines 1-2), performing a wet etching using hydrogen peroxide (column 8, lines 5-20); forming an under ball metallurgy (UBM) 39 on each of the bonding pads 32 and forming a bump on the bump (see Fig. 10) layer 39 of Fig. 10.

Regarding claims 2 and 7, Lin et al. disclose in column 7, lines 65-66 wherein the material used to form the bonding pad is aluminum.

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Regarding claims 3 and 8, Lin et al. disclose in column 3, lines 1-16 wherein the material used to form the bump is gold.

Regarding claims 4 and 9, Lin et al. disclose in column 9, lines 28-35 further performing a dry etching process to removed a native oxide layer.

Regarding claims 5 and 10, Lin et al. disclose in column 8, lines 45-60 wherein bump is formed by plating.

Regarding claim 11, Lin et al. disclose in column 8, lines 5-20 wherein the peroxide is hydrogen peroxide.

Claim Rejections - 35 USC § 103

- 3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
 - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
- 4. Claims rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al.

(U.S. 6,426,281) in view of Saia et al. (U.S. 4,444,618).

Regarding claim 12, Lin et al. disclose in Figures 6-17 a method of forming a bump comprising a wafer Figs. 6 having plurality of chips via semiconductor 30 (column

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7, lines 45-50) provided with a plurality of bonding pads 32 (column 8, lines 1-2), performing a wet etching using hydrogen peroxide (column 8, lines 5-20); forming an under ball metallurgy (UBM) 39 on each of the bonding pads 32 and forming a bump on the bump (see Fig. 10) layer 39 of Fig. 10.Saia et al. disclose in Figure 3-7.

Lin et al. do not mention or disclose the step of performing a wet etching to at least remove the hillock on the bonding pad and forming a bump structure on the bonding pad. However, Saia et al. disclose a method of forming a bump on a wafer for a structure device comprising the step performing a wet etching to at least remove the hillock on the bonding pad; and forming a bump structure on the bonding pad (see Examples V and VI in columns 7 and 8).

Therefore, at the time of the subject invention, it would have been obvious for a person of ordinary skill in the art to modify the device of Lin et al. by adding the step of wet etching to remove the hillock on the bonding pad as taught by Saia et al. because it can prevent the many hillocks may be formed on the bonding pad cause nodules on the bump after the BM layer and the bump are sequentially formed, thus the UBM layer and the bump sequentially formed on the bonding pad can compensate for the uneven profiled of the bonding pad.

Response to Arguments

1. Applicant's arguments with respect to claims 1-11 have been considered. Some of the arguments are most in view of the new explanations provided in the rejection for applicant's benefit. The other arguments are not persuasive.

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2. The applicants argue that:

Lin et al. the wet etching process is to strip the photoresist layer 38, but not to remove the hillock on the bonding pad.

The examiner respectfully disagree to the above argues because:

Lin et al. the wet etching process is to strip the photoresist layer 38 as to the limitation of claim 1. The examiner cannot find any limitation regarding removing or cleaning the hillock on the bonding pad in claims 1-11. In addition, In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., removing or cleaning the hillock on the bonding pad) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

5. Applicant's arguments with respect to claims 12-13 have been considered but are most in view of the new ground(s) of rejection.

Conclusion

6. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within two months of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory

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action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trung Nguyen whose telephone number is 703-305-4925. The examiner can normally be reached on Monday through Friday, 8:30AM – 5:00PM. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-5841. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cuneo Kammie can be reached at (703) 308-1233.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-308-0956.

SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

Trung Nguyen

Patent Examiner Group Art Unit 2829 March 19, 2003